



CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited in the United States Postal Service as first class mail in the envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia, 22313-1450, on

7-23-04

Date of Deposit

27,922 Pog. No.

Reg. No.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:

Applicant

Lawrence E. Gebhart et al.

Appln. No.

10/804,841

Filed

March 19, 2004

Title

ELECTROPLATING CELL WITH HYDRODYNAMICS

FACILITATING MORE UNIFORM DEPOSITION ACROSS A

WORKPIECE DURING PLATING

Docket No.

461987-024

Art Unit

1742

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §1.56, the Examiner's attention is directed to the references listed on the attached Information Disclosure Citation. Copies of all non-patent literature references are provided herewith.

It is to be understood that the present submission of art is in no way intended to be a waiver of any arguments or defenses available to the applicant under the rules of the U.S. Patent and Trademark Office and the statutes of the United States.

No fee is required. The Commissioner is authorized to charge any additional fees required by this paper or to credit any overpayment to Deposit Account No. 20-0809.

Respectfully submitted:

By:

Mark P. Levy

Reg. No./ 27.92

Application No.: 10/804,841 Docket No.: 461987-024 Information Disclosure Statement

THOMPSON HINE LLP 2000 Courthouse Plaza N.E. 10 West Second Street Dayton, Ohio 45402-1758 Telephone: (937) 443-6949 Facsimile: (937) 443-6635

#348764

INFORMATION DISCLOSURE CITATION

Page 1 of 3 Pages



1401767-024 140111 110.: 10/004,041	Docket:	461987-024	Appln. No.:	10/804,841
---------------------------------------	---------	------------	-------------	------------

Applicant: Lawrence E. Gebhart et al.

Filed: 03/19/2004 Group: 1742

U.S. PATENT DOCUMENTS

	VIRADE		ENT DOCUMENTS		 	
Examiner	Document No.	Date	Name	Class	Sub	
	2002/0033341	03/2002	Taylor et al.			
	2002/0038764	04/2002	Taylor et al.			
	2003/0075450	04/2003	Taylor et al.			
	2004/0004006	01/2004	Taylor et al.			
	2004/0011666	01/2004	Taylor et al.			
	5,599,437	02/1997	Taylor et al.			
	5,804,057	09/1998	Zhou et al.			
	5,865,971	02/1999	Sunkara			
	6,080,504	06/2000	Taylor et al.			
	6,203,684	03/2001	Taylor et al.			
	6,210,555	04/2001	Taylor et al.			
	6,221,235	04/2001	Gebhart			-
	6,303,014	10/2001	Taylor et al.			•••
	6,309,528	10/2001	Taylor et al.			
	6,319,384	11/2001	Taylor et al.			
	6,402,931	06/2002	Zhou et al.			
	6,524,461	02/2003	Taylor et al.			
	6,551,485	04/2003	Taylor			
	6,558,231	05/2003	Taylor			
	6,652,727	11/2003	Taylor et al.			
Examiner:		Date Cons	idered:	<u> </u>) (DED 600	

^{*} Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION

Page 2 of 3 Pages



Docket: 4	61987-024	Appln. No.:	10/804,841
Applicant:	Lawrence E. Ge	ebhart et al.	

Group:

1742

Filed:

TIC	DΛ	TEXIT	ואטרו	TA	/FNTS

03/19/2004

Examiner	Document No.	Date	Name	Class	Sub	
	6,676,825	01/2004	Gebhart			
	6,750,144	06/2004	Taylor			

FOREIGN PATENT DOCUMENT

Trans

Examiner	Document No.	Date	Country	Class	Sub	Y	N
							:

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	Schlesinger, M. et al., Modern Electroplating, Fourth Edition, John Wiley & Sons, Inc. (2000)		
	Paunovic, M. et al., <u>Fundamentals of Electrochemical Deposition</u> , John Wiley & Sons, Inc. (1998)		
	Ward, M. et al., "The effects of pulsed current in conjunction with eductor agitation for acid copper electroplating: A study for improved quality in PCB manufacture," <i>European PCB Convention</i> , Munich, Germany (1999)		
	Weber, A., "The Importance of Plating Cell Design and Hydrodynamics for Repeatable Product Quality in Latest Generation Vertical Platers for the Galvanic Industry," <i>IPC Printed Circuits Expo</i> , Long Beach, California (2003)		
	Chin, D-T et al., "Mass Transfer to an Impinging Jet Electrode," <u>J. Electrochem. Soc.</u> , 125, 9, pp. 1461-1470 (09/1978) Hsueh, K-L. et al., "Mass Transfer to a Cylindrical Surace from an Unsubmerged Impinging Jet," <u>J. Electrochem. Soc.</u> , Vol. 133, No. 1, pp. 75-81 (01/1986)		
Examiner:	Date Considered:		

^{*} Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLO	OS URE C ITATION
--------------------	-----------------------------

Page 3 of 3 Pages

ISCLOSURE CITATION	1
01.6	
111 2 6 2004 m	
THE JUL THE SE	
TRADEWIS OF	
MADE	

Docket: 461987-024	Appln. No.: 10/804,841
Applicant: Lawrence E. Gebl	hart et al.
Filed: 03/19/2004	Group: 1742

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	Hsueh, K-L. et al., "Mass Transfer of a Submerged Jet Impinging on a Cylindrical Surface," <u>J.</u> <u>Electrochem. Soc.</u> , Vol. 133, No. 9, pp. 1845-1850 (09/1986)		
	Ward, M. et al., "Novel Agitation for PCB Production: Use of Eductor Technology," <u>Trans. IMF</u> , 76(4), pp. 121-126 (1998)		
Ward, M. et al., "Exploitation of eductor agitation in copper electroplating," <i>Proc. SURFIN</i> Cincinnati, Ohio, (06/1999)			
	Chin, D-T. et al., "Mass Transfer from an Oblique Impinging Slot Jet, <u>J. Electrochem. Soc.</u> , Vol. 138, No. 9, pp. 2643-2650 (09/1991)		
Carano, M., "Hole Preparation & Metallization of High Aspect Ratio, High Reliability Back Panels, Part 2," Circuitree, pp. 10-22 (02/2003)			
Examiner:	Date Considered:		

^{*} Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

#348747